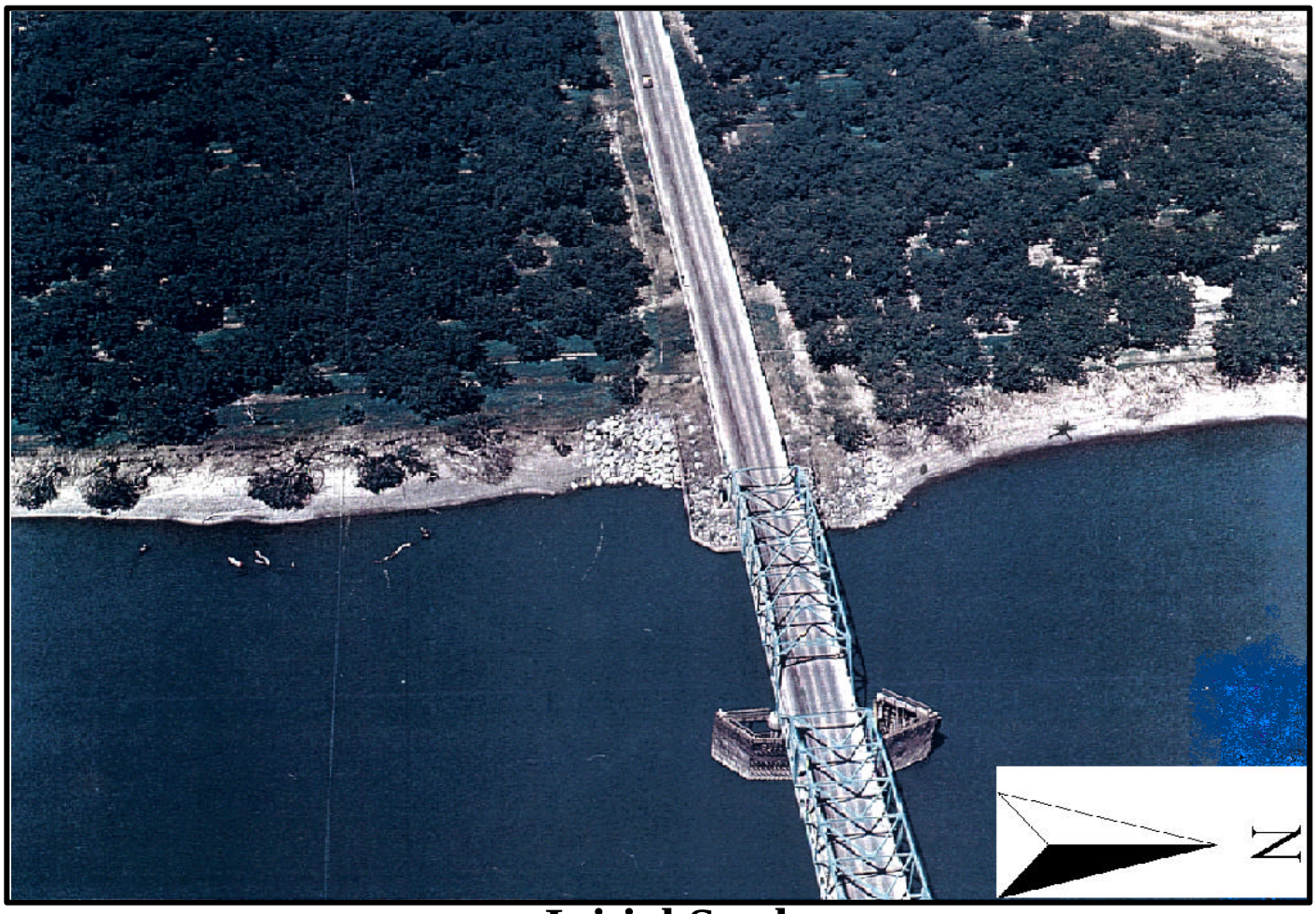
Butte City Bridge – Erosion Control



Initial Study

State Route 162
Glenn County

03-Gle-162, KP 123.4
PM 76.7
03-4A0100
October 2001

INITIAL STUDY

For the proposed

Butte City Bridge (Br. No. 11-0017) Erosion Control
Near Butte City
State Route 162 in Glenn County

03-GLE-162
KP 123.4, PM 76.7
EA 03-4A0100

Submitted Pursuant to the California Environmental Quality Act
(Division 13 of the Public Resources Code)

State of California
Department of Transportation

_____
Date of Approval

_____
John Webb, Chief
North Region Environmental Services

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Introduction

What's in this document?

This document is an Initial Study, which examines the potential environmental impacts of alternatives for the proposed project located in Glenn County, California. The document describes why the project is being proposed, alternative methods for constructing the project, the existing environment that could be affected by the project, and potential impacts from each of the alternatives.

What should you do?

- Please read this Initial Study
- We welcome your comments. If you have any concerns regarding the proposed project, please send your written comments to Caltrans by the deadline. Submit comments via regular mail to Caltrans, Attn: Jean L. Baker, Environmental Management, P.O. Box 911, Marysville, CA 95901. This document will also be available on the Caltrans website at: http://www.dot.ca.gov/dist3/departments/environmental/buttebrg/index.htm

- Submit comments by the deadline: **December 7, 2001**

What happens after this?

After comments are received from the public and reviewing agencies, Caltrans may: (1) give environmental approval to the proposed project, (2) undertake additional environmental studies, or (3) abandon the project. If the project were given environmental approval and funding were appropriated, Caltrans could design and construct all or part of the project.

For individuals with sensory disabilities, this document is available in Braille, large print, on audiocassette, or computer disk. To obtain a copy in one of these alternate formats, please call or write to Caltrans, Attn: Jean L. Baker, Environmental Management, P.O. Box 911, Marysville, CA 95901; (530) 741-4498. Voice, or use the California Relay Service TTY number, 1(800) 735-2929.

Purpose and Need

The California Department of Transportation (Caltrans), in conjunction with the Federal Highway Administration (FHWA), proposes to prevent erosion along the westerly bank of the Sacramento River, which is threatening the stability of the shallow bents on the western floodplain of the Butte City Bridge (Br. No. 11-0017) on State Route 162 in Glenn County. The river is rapidly eroding the riverbank upstream and downstream of the bridge although previous projects have been completed to protect bent numbers 107 through 103 from further damage. See the project vicinity in figure 1 below.

To stabilize and maintain integrity of the bridge, rock groins (rock spurs with sheet piles) will be placed upstream (north) of the bridge along the west bank. The rock groins intend to reduce flow velocities, deflect flowing water away from the riverbank, and encourage sedimentation, which will prevent further erosion and stabilize the riverbank and bridge. In addition, Rock Slope Protection (RSP) will also be placed downstream (south) of the bridge along the westerly riverbank. RSP placement intends to maintain stability of the bridge by controlling erosion of the westerly bank of the river immediately downstream of the bridge. Placement of rock groins and RSP would preserve the bridge and maintain safety to traveling public. Figure 2 below depicts the Butte City Bridge.

Figure 1 – Project Vicinity

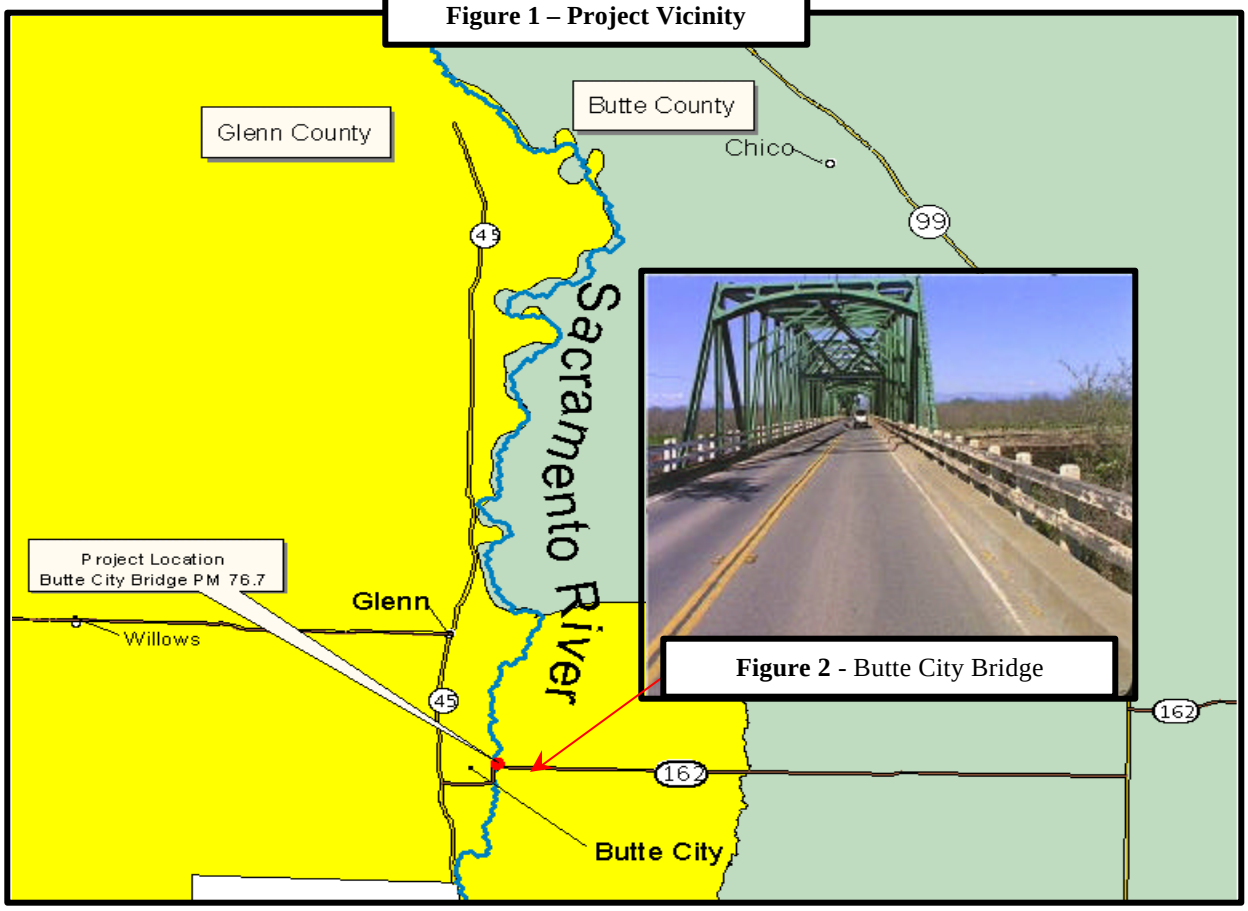


Figure 2 - Butte City Bridge

Project Background

The bridge was constructed in 1948 as a replacement structure. Riverbank erosion was first noted in 1953 and has been progressive to this day. The aerial photograph (figure 3 below) depicts progressive erosion along the bank-line from 1983 to 1997. This erosion has caused scour at the bridge bents numbers 107 and 106; as a result, the factor-of-safety for the bridge was projected to be low during high flow conditions. Consequently, emergency repair work was conducted to prevent additional damage to the bridge. Sheet pilings were constructed to enclose and protect the affected bridge bents on the westerly side of the river (figure 4 below). In addition, RSP was placed both upstream and downstream from the bridge to stabilize the embankments (figure 5 below). This emergency work only focused at the bridge site; however, riverbank erosion was present both upstream and downstream from the bridge.

Of significance to the bridge structure, a natural bend around the sandbar has been observed upstream of the bridge (figure 3), and historical data suggests that the river channel will continue to migrate westward. The current alignment of the river through the bridge span results in a significant potential for continual scour and erosion along the west bank-line, which will render the bridge unstable and unsafe.

Figure 3 – Riverbank Erosion

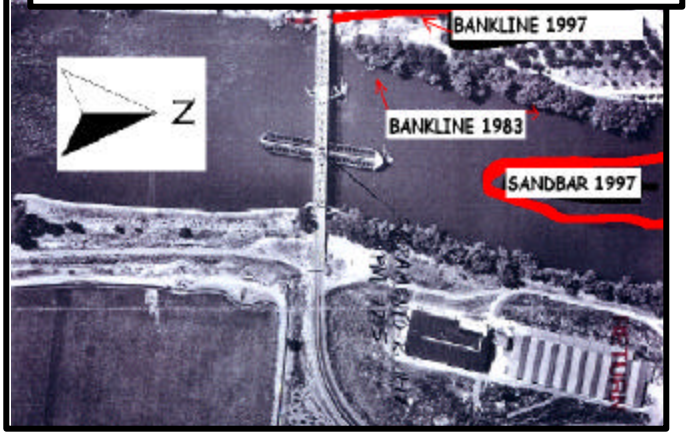


Figure 4 – Downstream (South of Bridge) Emergency Repair Work

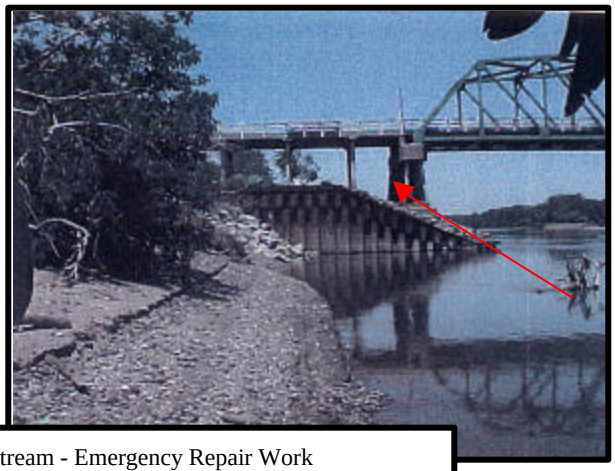
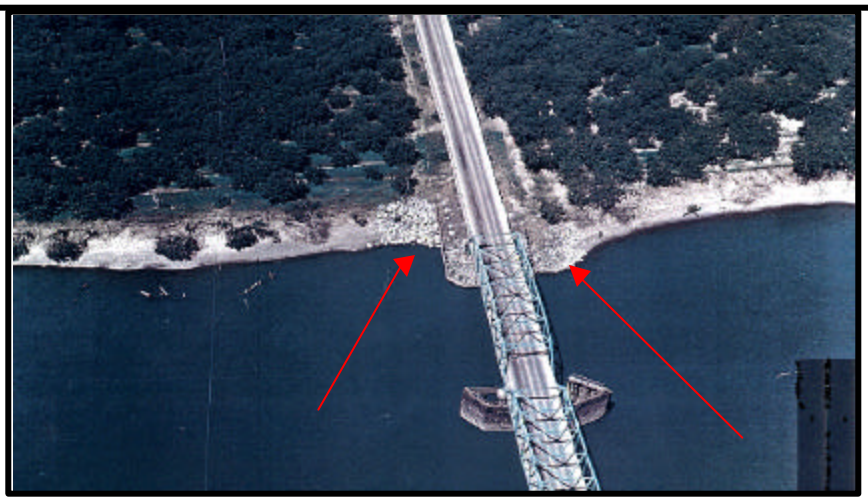


Figure 5 – Placement of RSP Upstream & Downstream - Emergency Repair Work



Project Description

The project proposes placement of rock groins upstream (north) and RSP downstream (south) of the bridge (see figure 6).

WORK UPSTREAM (NORTH) OF BRIDGE

Installation of five rock groin structures will extend out from the western bank into the Sacramento River. Each rock groin will be separated at approximately 150 - 200 feet apart from each other, extending 950 feet, maximum, upstream from the bridge. They will vary from 20 to 65 feet in length (see figure 7 for diagram of rock groin design). For comparison, figure 8, aerial photograph, depicts the same area as figure 7, schematic diagram. Work is proposed to occur from the river by use of a barge to place and construct the rock groins.

Rock groins will be used to deflect flowing water away from the riverbank, to reduce flow velocities near the western riverbank, to prevent erosion of the riverbank, and to establish a more desirable channel alignment, thus encouraging sediment deposition.

Figure 6 – Upstream and Downstream – Project Area & Description

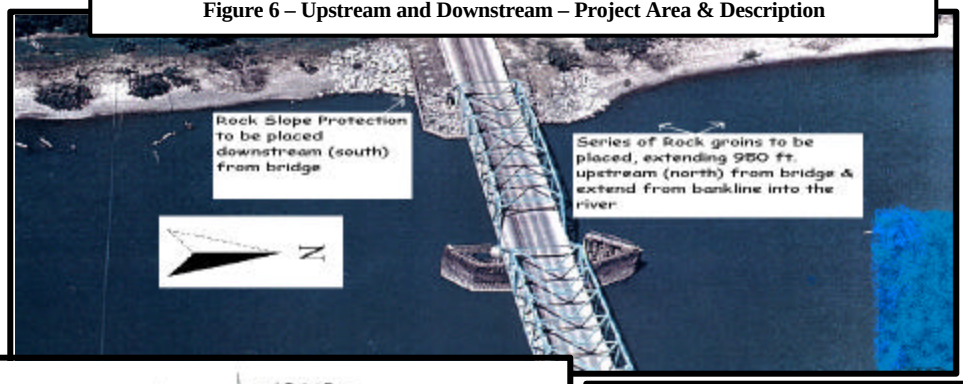
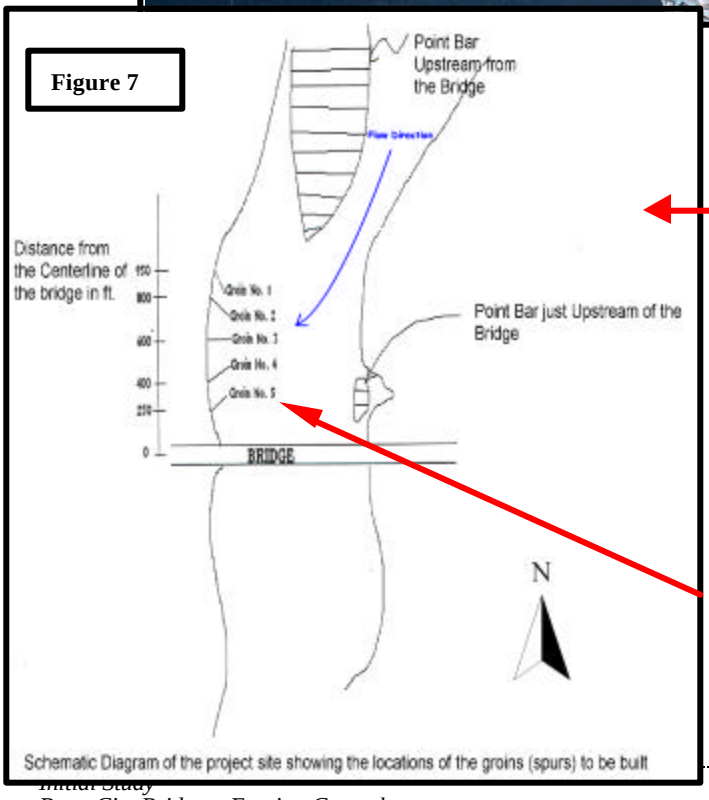
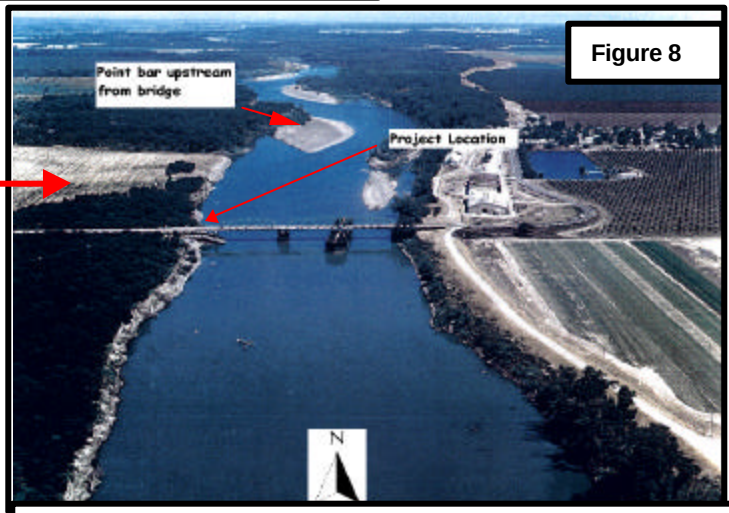


Figure 7



Schematic Diagram of the project site showing the locations of the groins (spurs) to be built

Figure 8



Groin Number	Length	Distance from Center Line of the Bridge
1	20 ft.	950 ft.
2	40 ft.	800 ft.
3	65 ft.	600 ft.
4	40 ft.	400 ft.
5	20 ft	250 ft.

Project Description *Continued*

WORK DOWNSTREAM (SOUTH) OF THE BRIDGE

RSP will be placed on the west riverbank downstream (south) from the bridge at the existing sheet piling (see figure 9 below). An access road would be utilized to transport the rock (1223 m^3) and placement will occur from the riverbank.

Figure 9 – Downstream (South) Side of Bridge

No Action Alternative

A “no action alternative” would result in continued erosion of the riverbank and west migration of the river channel. Continued migration of the river channel will eventually impact the bridge abutment and bents as occurred during the storms in 1996/1997. State Route (SR) 162 is an important commercial and economic route for the movement of goods and services in the north valley. The State Route (SR) serves as a link between the eastern portion of the Sacramento Valley and Interstate 5.

Affected Environment

The proposed project is located on the western bank of the Sacramento River in Glenn County. The study area consists primarily of agricultural land (walnut orchard) and some riparian habitat along the eastern riverbank. The western riverbank is privately owned. This property is currently a walnut orchard and is undergoing severe loss due to erosion. A National Wildlife Refuge, Sul Norte Unit of the Sacramento River, is located north of the bridge. Although the project will not encroach onto the Refuge, Caltrans will need to obtain a permanent easement to use the existing road within the Refuge for access and maintenance purpose.

The landscape in this area is nearly level to gently sloping, at an elevation of 25 to 150 feet. Native vegetation along the river corridor in this area includes Fremont’s cottonwood, mixed willow series and Emergent aquatic communities.

Environmental Evaluation

In order to identify potential environmental impacts associated with this project, Caltrans has prepared the following technical studies: visual impact assessment/aesthetics, air quality report, archaeological and historical survey report, biological/natural environmental study, hazardous waste evaluation, noise report, and water quality. An Environmental Significance Checklist (discussion follows) was completed to identify potential project impacts. This checklist and technical reports for the project are available for review at the Caltrans District 3 Office, 703 B Street, Marysville, CA 95901.

For more information, please contact Jean L. Baker at (530) 741-4498 or Keith Herron, Project Manager at (916) 274-2993.

Aesthetics

Impacts

Viewer groups will be users of the river corridor, users of the Sacramento Wildlife Refuge, and highway travelers on SR 162 with views of the project from the Butte City Bridge. This project will introduce moderate to mild visual impacts to the area, with the proposed rock groins. Large stands of rock will be visible at all times of the year. The rock groins are not indicative of the natural environment within this area. However, erosion control is necessary given the fact that the flow of the river will continue to scour the western bank of the river, creating a unsightly view, as well as destroy the walnut orchard that currently occupies the project area.

Construction work will result in removal of existing vegetation that currently occupies the riverbank in the area. Vegetation will be removed from the waterline to the top of the bank. This vegetation is not native, nor is it a significant scenic resource. The vegetation would likely be lost with the progressive erosion of the riverbank.

Mitigation and/or Commitments

In order to minimize the impacts from the rock groins, the below recommendation are as follows:

- Material used to stack against the piles should be natural rock found in the Sacramento Valley.
- No concrete or unnatural material should be used to construct the rock groins.
- All disturbed areas are to be re-vegetated.

Air Quality

Impacts

The project will not have a substantial influence on the capacity or composition of the traffic. Certain transportation projects have no impact on regional emissions. Because of their nature, these 'neutral' projects may be excluded from the regional emissions analyses required in order to determine conformity of Transportation Improvement Program (TIP). The U.S. Department of Transportation and Environmental Protection Agency (EPA) concur that project level analyses of local CO impacts is not necessary for non-capacity increasing projects which are on the same alignment. Therefore, an air quality study is not required.

Mitigation and/or Commitments

- Air pollutants during construction will be regulated in accordance with Section 7-1.01F (Air Pollution Control) and Section 10.1 (Dust Control) of the current Caltrans' Standard Specifications.
- The contractor conducting the work at the project site is required to comply with all local air pollution control rules, regulations, and ordinances.

Archaeological Preservation

Impacts

The Archaeological study did not identify any archaeological resources within the survey area.

Mitigation and/or Commitments

- Additional survey will be required if the project changes to include areas that were not surveyed.
- If buried cultural materials are encountered during construction activities, it is Caltrans policy that work in the immediate vicinity of the find halt until a qualified archaeologist can evaluate the nature and significance of the find.
- If human remains are unearthed during construction, State Health and Safety Code Section 7050.5 states that no further disturbance shall occur until the County Coroner has made the necessary findings as to origin and disposition pursuant to the Public Resources Code Section 5097.98.
- If buried cultural materials or human remains are encountered, Caltrans will be immediately notified.

Historic Preservation

Impacts

Record searches indicated that the current survey area was not part of any prior cultural resource studies and does not contain any previously recorded cultural resources.

A record search of the sacred lands file of the Native American Heritage Commission did not indicate the presence of Native American cultural resources in the vicinity.

Mitigation and/or Commitments

Representatives of local Native American groups were contacted regarding any issues of concern to their communities. These contacts, based on an updated list of Native American contacts provided by the Native American Heritage Commission, consisted of letters dated April 19, 2001.

Biological Resources

Impacts

Potential impacts to special status fish and bird species have been identified within the project area and are protected under the Federal/State Endangered Species Act(s) and the Migratory Bird Treaty Act (MBTA) as follows:

Federal Endangered Species Act

- Sacramento River winter-run chinook salmon (*Oncorhynchus tshawtscha*) - Endangered species
  - Designated "Critical Habitat" includes the water, substrate, and adjacent riparian zones from Keswick Dam downstream to the Sacramento-San Joaquin Delta.
- Central Valley spring-run chinook salmon (*O. tshawtscha*) - Threatened species
  - Designated "Critical Habitat" includes all features that contribute to riparian function.
- Central Valley fall-run and late fall-run chinook salmon (*O. tshawtscha*) – Candidate species
  - Designated "Essential Fish Habitat" is defined as those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity.
- Central Valley Steelhead (*O. mykiss*) - Threatened species
  - Designated "Critical Habitat" includes all features that contribute to riparian function.
- Sacramento Splittail (*Pogonichthys macrolepidotus*) - Threatened Species

State Endangered Species Act

- Western yellow-billed cuckoo (*Coccyzus americanus occidentalis*) – Endangered species
- Swainson's Hawks (*Buteo swainsoni*) - Threatened species

Migratory Bird Treaty Act

- Osprey (*Pandion haliaetus*) - Species of Concern

Mitigation and/or Commitments

Fish Species

- Permits (incidental take) will be obtained with a proposed work window (**May 15 through September 15)** incorporated to protect and avoid impacts to fish species (listed below) while work is conducted in the river.
  - Sacramento River winter-run chinook salmon (*O. tshawtscha*)
  - Central Valley spring-run chinook salmon (*O. tshawtscha*)
  - Central Valley fall-run and late fall-run chinook salmon (*O. tshawtscha*)
  - Central Valley Steelhead (*O. mykiss*)
  - Sacramento Splittail (*Pogonichthys macrolepidotus*)

Biological Resources *Continued*

Mitigation and/or Commitments *Continued*

- RSP will be placed in such a manner as to not cause a physical barrier to water flow or fish passage.

- Coordination with the National Marine Fisheries Service (NMFS) and U.S. Fish and Wildlife Service (USFWS) will continue to determine appropriate avoidance measures throughout project construction.

Bird Species

- The Swainson Hawk (*Buteo swainsoni*), Western yellow-billed Cuckoo (*Coccyzus americanus occidentalis*), and Osprey (*Pandion haliaetus*) have been identified within the project area.

- Due to the Endangered Species Act(s) that protect special status fish species, a work window is proposed between (May 15th through September 15th) that will minimize impacts to listed fish species in the project area; consequently, work will occur during this proposed work window when the above bird species may be present. Therefore, the following measures will be implemented to minimize impacts to the following species in accordance to California Endangered Species Act (CESA) and Fish and Game Code, Section 3503.5) as follows:

    - **Swainson Hawks and Western yellow-billed Cuckoo**
      A 2080 permit (incidental take) will be obtained through the California Department of Fish and Game (CDF&G) with continued coordination to determine impact avoidance measures.

    - ***Osprey***
      The following avoidance measures comply with the Fish and Game Code 3503.5. Ospreys currently have a nest located on the east side of the river south of the bridge. Monitoring of this nest and stage of development of young will be necessary. Should construction cause the bird to leave the nest (while incubating or caring for fledglings), construction will cease until all juveniles have matured enough to leave the nest. This nest has shown historical tolerance to disturbance.

- Caltrans will continue to coordinate with responsible agencies to determine appropriate avoidance measures in order to reduce impacts to both fish and bird species protected under the Endangered Species Act(s) and the MBTA.

- **WORK WINDOW**: To minimize impacts to special status species, the following work window has been proposed. MAY 15TH through SEPTEMBER 15TH

Biological Resources *Continued*

Mitigation and/or Commitments *Continued*

- All construction work will have Caltrans Best Management Practices (BMP) implemented, including Section 2.3.2 of the Caltrans Construction Site BMP Manual, satisfying the requirements for dust and erosion control.

- All disturbed soils, staging areas, and access ramps will be revegetated with native species appropriate to the area.

Noise

Impacts

This project will not increase the capacity of the highway. There will not be a significant change in the vertical alignment and there will not be a significant change in the horizontal alignment. Therefore, the project is not defined as a Type 1 project as specified in 23 Code of Federal Regulations (CFR) Part 772, "Procedures for Abatement of Highway Traffic Noise and Construction Noise" and a noise study is not required.

Mitigation and/or Commitments

- Construction noise from the contractor's equipment is unavoidable. However, the temporary noise source is regulated by Caltrans' "Standard Specifications, Section 7-1.0II, which is included as part of the contract.
- The contractor is required to comply with all local sound control and noise level rules, regulations, and ordinances.

Water Quality

Impacts

No significant impacts to water quality will occur and can be avoided by implementing the water pollution plans as discussed below.

Mitigation and/or Commitments

- Standard Special Provisions (SSPs) must be incorporated into the project Plans, Specifications and Estimates (PS&E) to ensure that the contract documents clearly set forth the contractor's responsibilities with respect to preparation and implementation of the required water pollution control plan.
    - The contractor will be required to submit either a Storm Water Pollution Prevention Plan (SWPPP) if the project involves 2 hectares (5 acres) to satisfy the requirements of Section 7-1.01G (Caltrans' Best Management Practices), **or,** a
    - Water Pollution Control Plan (WPCP) if the project involves less than 2 hectare (5 acres).

        - Before construction, the amount of acreage will be calculated to determine which plan above will be required of the contractor.

Hazardous Waste Sites

Impacts

The hazardous waste investigation was limited to a review of the "Cortese List". Based on this review, no hazardous waste is expected to be encountered within the project limits.

Mitigation and/or Commitments

N/A

Coordination and Consultation

Biological

- Consultation pursuant to Section 7 of the Federal Endangered Species Act is in progress with USFWS and NMFS concerning special status species. Consultation involves the determination of mitigation for anadromous fish that spend their adult lives in the ocean then migrate to fresh water and migratory species that move/migrate within a non-tidal aquatic system.
- Caltrans staff has initiated coordination with the CDF&G regarding mitigation measures to reduce or avoid impacts to state listed special status species and to reduce or avoid impacts to the river.
- Coordination has been initiated with the U.S. Army Corps of Engineers (ACOE) and the Regional Water Quality Control Board (RWQCB) regarding avoiding impacts to the river and water quality.
- Coordination & consultation efforts will continue throughout the project development process.

Permits Required

- **404** Permit/Nationwide #23 for work in waters of the United States and obtained from the ACOE, pursuant to the Federal Clean Water Act and in conjunction with the **401 certification** from the RWQCB
- **1601** permit will be required by the CDF&G, for work in and near the river.
- **2080** permit (incidental take) from the CDF&G will be required for the Western yellow-billed cuckoo and the Swainson's Hawk.
- Incidental take permit under Section 7 of the Federal Endangered Species Act
- California Department of Boating and Waterways
- California State Lands Commission
- U.S. Coast Guard

List of Preparers

The North Region of the California Department of Transportation (Caltrans) prepared this Initial Study. The following Caltrans staff prepared this Initial Study:

Darla Tate, Environmental Coordinator/Associate Environmental Planner (Environmental Management M2)

Krishnan Nelson, Environmental Planner/Biologist (Environmental Management)

Jeff Haney, Associate Environmental Planner/Archaeologist (Environmental Management M2)

Keith Pommerenck, Transportation Engineer (Noise & Air)

Alicia Beyer, Transportation Civil Engineer (Hazardous Waste Office)

Jean L. Baker, Chief of Environmental Management (Environmental Management M2)

Anthony Thurman, Transportation Engineer (Design)

Subhendu Mishra, Hydraulics Engineer (Hydraulics)

Keith Herron, Project Manager (Project Management)